Ops 301 Final Project Guidelines

LINK TO GITHUB:
https://github.com/NetCraft-Pro
(ADD YOUR OWN GITHUB BELOW so we can be added to it)
Will - https://github.com/Wrbaur
Tommy - https://github.com/taylortommy23
Seyed https://github.com/armoon1
Cody - https://github.com/Skalyx866
Brittany- https://github.com/Bmjohnson87/
Thierry - https://github.com/tt11223

LINK TO SOP's:
Onboarding IT policy -
https://docs.google.com/document/d/1UmxepD663N77gTwr2wRoMmvZ-Qy-xrdRtUEtQxHNdnk/edit#heading=h.l2vpyru6vdv2
Standard Operating Procedure for Network Topology - Google Docs
VPN Setup - Google Docs
SOP for VLAN Implementation - Google Docs
Standard Operating Procedure (SOP) for Backup Solutions - Google Docs
Standard Operating Procedure (SOP) for File Shares - Google Docs
Statement of Purpose (SOP) for Security Measures - Google Docs
Standard Operating Procedure (SOP) for Windows Server Deployment and Domain Controller - Google Docs
SOP for Virtual Machine Deployment - Google Docs

LINK TO project management site/Board:
https://trello.com/b/kQichFM5/status-board

Link to Slide Deck:
https://docs.google.com/presentation/d/1zeVuBw7DUMpogYqQG7K4TPg0J31C12pnNRHpLEgffGI/edit#slide=id.p1

Scenario & Problem Domain

Your team is a MSP and has been selected by a growing technology company, that is in need of a network upgrade to support its expanding workforce and enhance data security. The company currently has 20 employees working in different departments, including Sales and Marketing, Research and Development, and IT Management.

The CEO has emphasized the importance of a secure and efficient network infrastructure that enables seamless communication between the office and the home company's central server. Additionally, the company wants to implement measures to safeguard data, improve collaboration through file shares, ensure business continuity with a robust backup solution, and establish an IT onboarding policy.

Project Objectives:

Network Design and Topology:

- Objective:
  - Design a network topology that optimizes communication between the office and the central server.
  - Consider the physical layout of the office space and the placement of virtual machines representing computers in different departments.

VPN Setup:

- Objective:
  - Build a site-to-site VPN tunnel between the office router (virtual machine) and the home company's central server (virtual machine)
  - Alter at least one parameter compared to what was performed in class (e.g. router used, VPN protocol used, introducing a cloud component, etc.)
  - Ensure that the VPN connection is secure, reliable, and allows for encrypted data transfer.
  - Demonstrate successful access to a file server, Active Directory, or other network resource on the other end of the tunnel.

VLAN Implementation:

- Objective:
  - Create VLANs to segregate network traffic based on departments:

        - VLAN 10: Management (Virtual Machine - Server)
        - VLAN 20: Sales and Marketing (Virtual Machine - Computer 1)
        - VLAN 30: Research and Development (Virtual Machine - Computer 2)
        - VLAN 40: Future Expansion (Virtual Machine - Computer 3)

Backup Solution:

- Objective:
    - Develop a backup solution that includes both on-site and off-site components.
    - Schedule regular backups to ensure data integrity and quick recovery in case of data loss.

File Shares:

- Objectives:
    - Set up separate file shares in the central server based on departments to facilitate collaboration among virtual machines.
    - Mount the file shares to the corresponding workstations.
    - Implement access controls to ensure data security and privacy.

Security Measures:

- Objectives:
    - Implement firewalls, antivirus solutions, and other security measures to protect the network from cyber threats.

Windows Server Deployment and Domain Controller Setup:

- Objectives:
    - Develop scripts (PowerShell or other scripting language) to automate the deployment of a Windows Server (Virtual Machine).
        - Minimum operations this script should perform:
            - Fully standup all requisite services to make the server into a DC
            - Assign the Windows Server VM a static IPv4 address and a DNS
              Note: in class we assigned a *reserved IP* in pfSense, but this script is to assign the VM a *static IP*.

        - Rename the Windows Server VM
        - Installs AD-Domain-Services
        - Create an AD Forest, Organizational Units (OU), and users
    - Configure the server to act as both a DNS server and a Domain Controller.
    - Integrate the new server into the existing network infrastructure.

Virtual Machine Deployment:

- Objectives:
    - Deploy virtual machines for the server, router, and three computers representing different departments.
    - Ensure each computer is associated with the correct VLAN.

IT Onboarding Policy:

- Objectives:
    - Develop an IT onboarding policy outlining the procedures for new employees joining the company.
    - Include guidelines for account creation, device setup, network access, and security training.
    - Ensure the policy aligns with industry best practices and the specific needs of the company.

Documentation:

- Objectives:
    - Create comprehensive documentation that covers the following:
        - Network design
        - Configurations
        - Virtual machine deployments
        - Scripting details
        - IT onboarding policy

The documentation should serve as a reference for future maintenance and upgrades.

- What other possible vulnerabilities is your team concerned about? Does your team have any additional suggestions or solutions to any oversight?

Client Company and Org Chart

- Objective:

    - Use your favorite AI tool to generate a fictional client company, acquired company and org chart. This is your opportunity to be creative!

Try AI prompts like:

- "Build me a fictional org chart, including an executive team and at least 4 different roles in each department, using movie characters."
- "Can you add an additional smaller company that is being acquired by the above org chart?
- "Can you give me a short description about the acquired company?"
- "How do I structure an AWS VPC to fit this org chart?"
- "Which subnets should be public and private?"

Stretch Goal

Your client company has been wanting to move their physical infrastructure to the cloud and this is the perfect opportunity to build it out in AWS! If you team has time, reach for this stretch goal by meeting the following requirements:

- Decide which departments in your org chart need public or private subnets.
    - Create a description of the department and why it needs to be private or public.
    - Document your reasoning for each design choice either in a Google Doc linked in a repo or in a markdown file.
- Draw out your team's proposed AWS VPC topology solution
    - Don't forget to include IP addresses!
- Build out your team's AWS VPC solution in the cloud!
    - Make the necessary connections and configurations to meet your client company's needs, including the newly acquired company.
- Hint: In an AWS environment, you could deploy a Windows Server instance within a VPC and use Active Directory as the user management system for those instances.

Tip: You can use AI tooling to help you generate storylines to validate your infrastructure design choices.

Assignments & Deliverables

- Keep an eye on Canvas for assignments due this week.
- Remember to complete nightly Project Report assignments. These assignments are easy to forget as you get swept up in interesting project subject matter.

- Necessities such as the Team Agreement (conflict resolution, etc.) and the Project Plan will be created in your Project Prep assignments. Instructor approval is required before progressing to the next Project Prep assignment.
- You will need to submit a preliminary link to your deliverables for instructor review a few days before presentations.
- You will need to give give a practice presentation to your instructor. Make this as close as possible to how you plan to present -- try not to break character, give asides or explanations, or engage in crosstalk.
- By demo day, you'll need these deliverables assembled:
    - Demo day slide deck
    - Project Reports
    - Project Prep Assignments
    - Link to GitHub Org
    - Google drive docs (linked in repo)
- Track your individual contributions throughout the project so that you can easily submit your individual contributions writeup on demo day for grading.